

REMARKS

Claims 1-9 were examined and reported in the Office Action. Claims 1-9 are rejected. Claims 1 and 3-9 are amended. Claims 1-9 remain. Applicant notes that the limitations “third network controlling unit” and “fourth network controlling unit” are used to distinguish the first and second network controlling units in each RAID controller. Therefore, no new matter is added.

Applicants request reconsideration of the application in view of the following remarks.

I. 35 U.S.C. §102(b)

It is asserted in the Office Action that claims 1-9 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,812,754 issued to Lui et al. (“Lui”). Applicant respectfully traverses the aforementioned rejection for the following reasons.

According to MPEP §2131, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.’ (Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). ‘The identical invention must be shown in as complete detail as is contained in the ... claim.’ (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, i.e., identity of terminology is not required. (In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)).”

Applicant’s amended claim 1 contains the limitations of “[a]n apparatus for a redundant interconnection between multiple hosts and a RAID, comprising: a first RAID controlling unit and a second RAID controlling unit for processing a requirement of numerous host computers, the first RAID controlling unit including a first network controlling unit and a second network controlling unit, and the second RAID controlling unit including a third network controlling unit and a fourth network controlling unit; and a plurality of connection units for connecting the first

RAID controlling unit and the second RAID controlling unit to the numerous host computers, wherein the first RAID controlling unit and the second RAID controlling unit directly exchange information with the numerous host computers through the plurality of connecting units, and the first network controlling unit exchanges information with the fourth network controlling unit, and the second network controlling unit exchanges information with the third network controlling unit."

Applicant's amended claim 9 contains the limitations of "[a]n apparatus for a redundant interconnection between multiple host computers and a RAID, the apparatus comprising: a plurality of connection units for connecting the host computers and the RAID; a first and a second RAID controllers, included in the RAID, each of which having a first network interface controller and a second network interface controller for processing requests from the plurality of the host computers connected through the plurality of the connection units, wherein the first network interface controller in the first RAID controller supplies data to the host computers connected through the plurality of connection units and processes information transmitted from the second network interface controller in the second RAID controller, wherein the first network interface controller in the second RAID controller supplies data to the host computers connected through the plurality of connection units and processes information transmitted from the second network interface controller in the first RAID controller, wherein the second network interface controller in the first RAID controller is used for fault tolerance by performing functions of the first network interface controller in the second RAID controller when the second RAID controller is faulty, and wherein the second network interface controller in the second RAID controller is used for fault tolerance by performing functions of the first network interface controller in the first RAID controller when the first RAID controller is faulty, and wherein the first network controlling unit in the first RAID controlling unit exchanges information with the second network controlling unit in the second RAID controlling unit, and the second network controlling unit in the first RAID controlling unit exchanges information with the first network controlling unit in the second RAID controlling unit."

In other words, Applicant's claimed invention includes two network interface controlling units in each RAID controlling unit for fault tolerance. The first

network interface controlling unit of one RAID controller is connected to a second network controlling unit of the other RAID controller through a connecting unit. The second network interface controlling unit of the one RAID controller is connected to a first network interface controlling unit of the other RAID controller through the connecting unit. The second network interface controlling unit of one RAID controller receives information from the first network interface controlling unit of the other RAID controller through a connecting unit, such as a switch and a hub, in the normal state. Furthermore, the second network interface controlling unit of one RAID controller performs the role of the first network interface controlling unit of the other RAID controller when the first network interface controlling unit of the other RAID controller is faulty.

Lui discloses a RAID system having a fiber channel arbitrated loop. Lui, however, does not teach, disclose or suggest two network interface controlling units included in each RAID controller. That is, in Fig. 3 of Lui, there only one controller SERDES 336 is shown (where controller SERDES 336 is similar to the RAID controller network interface controller of Applicant's claimed invention). Further, Lui discloses a RAID including only one RAID controlling unit having only one serializer/de-serializer module, which is similar to the RAID controller network interface controller of Applicant's claimed invention.

It is asserted in the Office Action that Liu discloses two network controlling units in a RAID controller because Liu discloses "[the host loops are coupled to either local or remote host computers 108 through port bypass circuits (PBCs) and serializer/de-serializer modules 336 in RAID controllers 302. In this preferred embodiment, only two host connections are shown in each RAID controller 302." This assertion, however, does not teach, disclose or suggest two network controlling units in each RAID controller. Moreover, Liu does not teach, disclose or suggest "... a first RAID controlling unit and a second RAID controlling unit for processing a requirement of numerous host computers, the first RAID controlling unit including a first network controlling unit and a second network controlling unit, and the second RAID controlling unit including a third network controlling unit and a fourth network controlling unit; ... wherein ... the first network controlling unit exchanges information with the fourth network controlling unit, and the second network

controlling unit exchanges information with the third network controlling unit,” or “the first network controlling unit in the first RAID controlling unit exchanges information with the second network controlling unit in the second RAID controlling unit, and the second network controlling unit in the first RAID controlling unit exchanges information with the first network controlling unit in the second RAID controlling unit.”

Therefore, since Lui does not disclose, teach or suggest all of Applicant’s amended claims 1 and 9 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Lui. Thus, Applicant’s amended claims 1 and 9 are not anticipated by Lui. Additionally, the claims that directly or indirectly depend on claim 1, namely claims 2-8, are also not anticipated by Lui for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claims 1-9 are respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely 1-9, patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.


If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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LLP

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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on May 9, 2005.


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